Loop-iNMS Integrated Network Management System

Features

- User-friendly GUI (Graphical User Interface)
- GUI client runs on Microsoft Windows platform.
- Server software runs on Sun Solaris or Linux
- Database Server: Oracle 10g
- End-to-end service management
- Fully supports all SNMP functions including commands, alarms, and statistics gathering
- Scalable up to 50 separate GUI clients simultaneously logged into the iNMS server
- Allows viewing and printing of all node statistics and alarm reports
- Configurable report design provides routine and on-demand reports
- Enriched topology management integrated with optional GIS geographic maps
  - Features zoom and drag-and-drop functionality
  - Views of optical cable connection, cross-connection, panel view, and resource trees increase service availability
- Robust and reliable configuration management scales to add additional network elements in distributed system architecture
- Efficient performance monitoring in real-time and history PM data at the NE level and circuit level
- Alarm management provides automatic notification via e-mail, GSM message (SMS), and audio alarms with advanced filtering system
- Root Cause Analysis (RCA)accurately diagnoses faults on NEs and managed circuits by status and severity levels
- System Access Security
  - Role-based user access control.
  - Customizable through any combination of operation functions, geographical locations/areas, and NEs
- Customer support management, advanced circuit diagnostics, and server self-management
- Advanced optional functions include
  - Docket Management (DM)
  - SNMP Northbound Interface (SNMPNBI)
  - Root Cause Analysis (RCA)
  - Clock Distribution Map (CDM)
  - Report Management Generic (RMG)
  - System Redundancy and Protection
  - Disaster Recovery (DR)
  - 3rd-Party NE Management (3rdNE)
  - Pseudowire Management (PWM)*
  - Circuit Group & Circuit Alarm (CGCA)
  - Circuit-Level Performance (CPERF)

Description

Loop-iNMS (Integrated/Intelligent Network Management System) is a set of intelligent software programs used for providing a Graphical User Interface (GUI) for the management of a communications network containing Loop Telecom products. It can be categorized into 3 groups below:

(1) TDM Access, which includes E1 CSU/DSU, HDSL CSU/DSU, and IDSL CSU/DSU
(2) Optical Transmission, which includes SDH/SONET ADM (Add-Drop Multiplex)
(3) IP/Ethernet interfaces

The GUI runs on a user-supplied computer running Microsoft Windows platform. Via LAN or WAN, up to 50 separate GUI clients can be concurrently logged into iNMS.

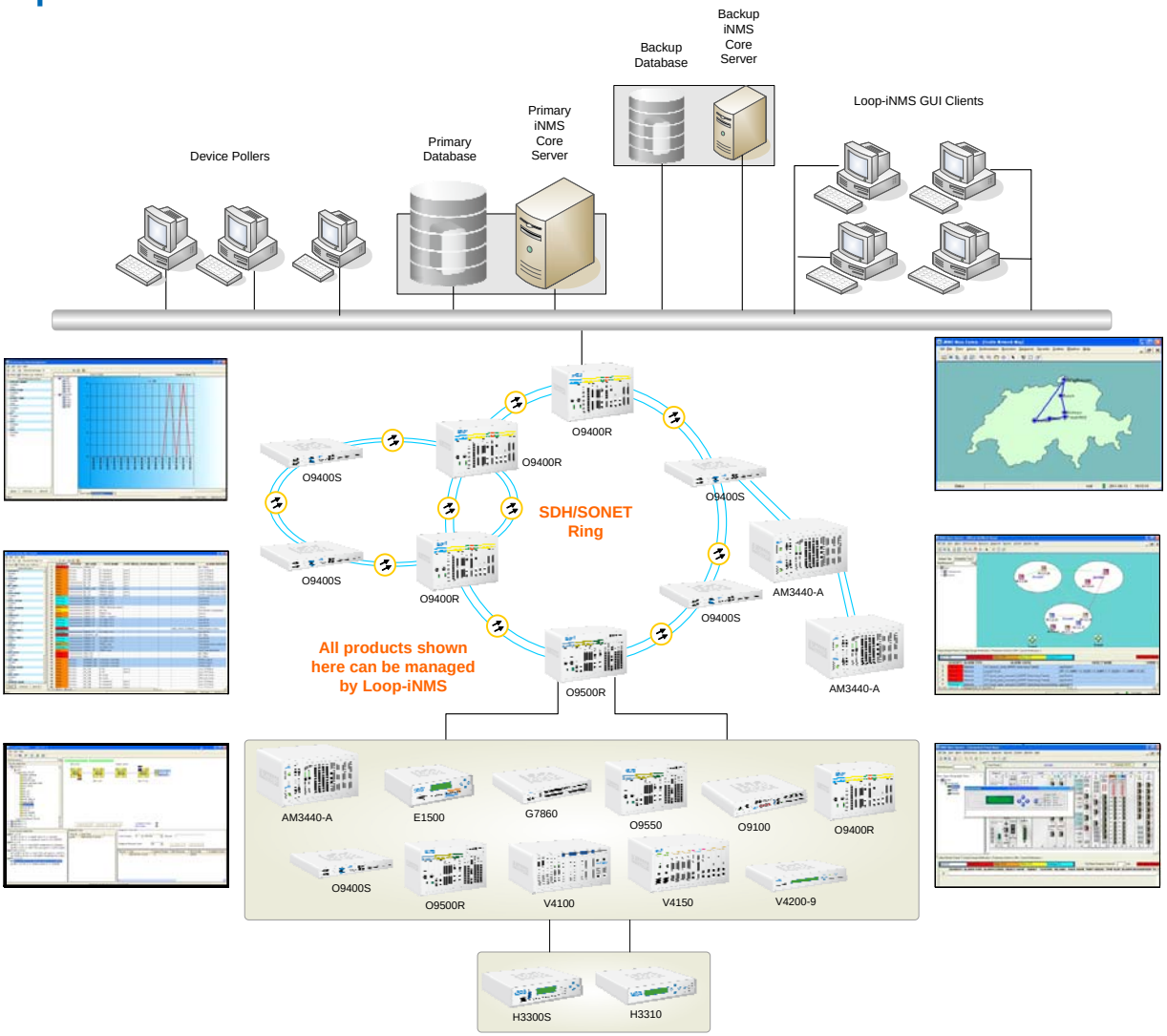
Workforce management is facilitated by multiple levels of login security, which provide the network manager great flexibility in work assignments. The hierarchical grouping featuring cities, buildings, and rooms allows rapid access to the desired network elements.

All SNMP provided functions are available in Loop-iNMS. This includes the execution of all commands, the gathering of all statistics, and the display of all alarm conditions in real time. Maps and reports can be printed as well as viewed directly from the iNMS GUI clients.

The support of Southbound Interface with NEs includes SNMP v1, v3, and others upon request. The northbound interface support includes CORBA and SNMP. Loop-iNMS is flexibly designed in a way to support nearly all types of southbound and northbound protocol sets. Customization adaptation into different protocols is allowed and is available upon request.

* Future Option

Loop-iNMS Architecture



The Loop-iNMS basic components are Device Poller, iNMS core and iNMS GUI Clients as shown in the top part of the diagram. The Loop-iNMS is capable of managing all the devices from Loop.

iNMS Main Core

- Runs either on Solaris/Sun server or Linux/Regular PC server
- Self-sustaining iNMS core is the background engine supporting FCAPS services
- Optional northbound interface engine is an advanced feature available upon request
- Supports TCP/IP socket connections for DPs, iNMS server, Database server, and GUI clients running on different PCs and servers in order to manage a large network when required
- Redundancy option is supported

DP (Device Poller)

- Runs either on Solaris/Sun server or Linux/Regular PC server
- Manages the southbound interface to the NE using SNMP protocol
- Provides regular polling of the current status of every NE
- Presents all real-time status changes to iNMS GUI client for display
- Supports regular polling of performance data
- Management Protocols supported between NE and DP are SNMPv1 or v3

GUI Clients

- Runs on Windows 2000 Professional, Windows XP Professional, or Windows 7 Professional 32 bit
- Supports up to 50 concurrent GUI clients

Loop-iNMS Basic Functions

Topology Management

- Offers topology view for:
  - Optical cable connection topology
  - Transmission NE connection topology
  - Access NE connection topology
  - PTN (Packet Transmission Network) NE connection topology*
  - Entire network NE connections topology
  - Panel view of equipment (NE)
  - Circuit route view
  - NE internal cross-connection
  - Menu tree view
  - Geographical Network topology view
- Supports zooming in and zooming out of topology views
- Allows users to create a desired layout to reflect the actual network
- Offers drag-and-drop approach for a user to create an NE icon

Configuration Management

- Provides configuration collection
- Supports multi-condition queries; adding, deleting, and modifying operations on configuration information stored in the iNMS database
- Supports configuration synchronization
- Provides remote control on NE's configuration
- General parameters setting
- Activation and release of cross-connections
- Synchronization clock-source setting
- Remote download of firmware for upgrading or maintaining NE
- Remote upload and download of NE configuration through iNMS
- Provides NE-level cross-connection configuration

Circuit Management

- Provides circuit management for:
  - Creation
  - Deletion
  - Queries
  - Modification
  - Display and Highlight on GUI topology
  - Database commitment for circuit information
- Provides multi-condition queries; adding, deleting, and modifying operations on circuit information stored in the database

- Provides circuit selection options of shortest path, minimum hop, load balancing, and minimal cost
- Provides a list of un-finished fall-back plans for troubleshooting and rescue operations
- ports TDM Circuit rate including:
  - N x 64K
  - E1
  - T1
  - E3
  - DS3
  - STM-1/4 or OC-3/12
  - STM-1/4/16 or OC-3/12/48
  - N x VC12 (N=1 to 63 for Ethernet pipe)/VT15 (N=1 to 84)
  - N x VC3/STS-1 (N=1 to 3 for Ethernet pipe)
  - N x VC4/STS-3 (N=1 to 4 for Ethernet pipe)
- Supports circuit route discovery for existing circuits
- Supports circuit deletion

Alarm Management

- NE alarm/event collection
- Alarm filtering
- Circuit-level alarm
- Alarm display
- Alarm history
- Alarm notification

User & Security Management

- Supports adding, deleting, and modifying operations on user account and a group of users
- Provides operation privileges and scope assignments
- Provides history command log for 3 to 12 months
- Supports multi-condition queries on history command log records
- Supports command log

Diagnosis Management

- Supports three types of diagnosis:
  - NE level diagnosis
  - Circuit level quick diagnosis
  - Circuit level advanced diagnosis
- Supports diagnosis report generation

NE-Level Performance

- Port-based performance task creation, deletion, display and query
- Port-based performance data display, query and report generation in tabular and graphical form. Report can be exported and saved in Microsoft Excel (Microsoft Excel versions 2010 or later).
- Performance counter collection in 15 minute or 24 hour intervals

iNMS Self-management

- Supports real-time monitoring on iNMS software processes
- Supports real-time monitoring on the status of the connections between NEs and DPs
- Supports database backup and recovery
- Supports server disk usage monitoring
- Provides online help for OAM&P operation
- Provides Time & Date Synchronization mechanism between iNMS and NEs

Loop-iNMS Advanced Optional Components

Docket Manager (DM)

- Provides Alarm Docket, Resource Docket, Circuit Docket and General Docket
- Provides Docket Management System resembling an email system
- Supports docket export as a trouble ticket
- Offers docket tracking system with open date and closing date
- Offers statistics of dockets open, closed, and pending

SNMP-based Northbound Interface (SNMPNBI)

- Supports SNMP v1/v3 NBI

CORBA-based Northbound Interface

- Supports CORBA NBI per TMF.814.
- Detailed CORBA NBI components and NRE costs are per-project based. Please contact Loop sales representatives for details.

Report Management Generic (RMG)

- Generates automatic and periodic reports and on-demand reports
- Exports reports to Microsoft Excel (Microsoft Excel versions 2010 or later)
- Supports pre-defined & fixed report templates

Root Cause Analysis (RCA)

- User-defined fault policies.
- Root cause analysis based on fault policies

Clock Distribution Map (CDM)

- For TDM Network (both 64k Access and SDH transmission)
- Manual or scheduled clock loop detection

System Redundancy and Protection

- Disaster Recovery (DR) Solution
  - Provides geographical system protection with dual iNMS services and an independent system on each site
  - DR status monitoring
  - Manual DR protection switching by iNMS GUI clients
  - Automatic DR Database (DB) synchronization

3rd-Party NE Management (3rdNE)

- Manages entire network with one software platform
- Provides capability to manage devices from 3rd-party equipment vendors and Loop devices, which is not fully supported by iNMS
- Shows network element (NE) connectivity and alarm status
- Accesses to telnet and SSH to a NE. Provide URL to bring up 3rd-party equipment web-based management system

Circuit Group & Circuit Alarm (CGCA)

- User-defined circuit group and group category
- Default category for hybrid multi-segment circuit to support TDMoE and conference applications.
- Alarm status monitoring and display by category, group and circuit.

Pseudowire Management (PWM)*

- As part of the management solution for Loop pseudo-wire products to provide emulated Ethernet services over a packet-switching network (PSN)
- Support both AM3440 TDMoE and O9500 TDMoE solution
- Support Loop PTN solutions
- Pseudo-wire circuit sub-module for IP switching based, per UDP number bundling circuit
- Hybrid circuit sub-module coming together with circuit grouping and circuit alarm grouping features for a multi-segments circuit over TDM and PSN networks

Circuit-Level Performance

- Circuit-based performance task creation, deletion, display and query
- Circuit-based performance data display, query and report generation in tabular and graphical form. Report can be exported and saved in Microsoft Excel (Microsoft Excel versions 2010 or later).
- Performance counter collection in 15 minute or 24 hour intervals

Third-Party Hardware System

Hardware Recommendation table

Note 1: Hardware system shall be provided by SI or end-customer.

Note 2: This recommendation is for reference only. Please consult with a Loop representative for precise hardware spec and quantities.

Item	Mandatory/ Optional	Name	Suggested Model	Remarks
1	M	Sun Server with Solaris	Small Sun M3000 (Oracle database server) ; Sun Netra T5220 ; Sun T2000 Medium Sun M4000 (Oracle database server); Sun Netra T5440	Used as the Loop-iNMS main server if Sun Server is Preferred. (Selection recommendation is shown below)
		OR		
		PC Server with Linux	Small Intel Dual-core PC server (rack mount or standalone) Medium Intel Quad-core PC server (rack mount or standalone)	Used as the Loop-iNMS main server if low-cost PC server is preferred.
3	M	Desk-top PC with 22" (or above) LCD and Windows XP Professional/ Windows 7 Professional 32-bit	Intel dual-core PC	Used as the Loop-iNMS GUI client(s)
4	O	Tape Library	none	Optional for Sun Server Automatic backup of the database.

Sun Server Specification Recommendation

Note: This recommendation is for reference only. Please consult with Loop representative for precise hardware spec and quantities. For project needing more than 500 NEs, please consult with Loop FAE for recommendation.

Sun Server	Sun Netra T2000	Sun Netra T5220	Sun Netra T2000 APP & DP Server plus T5220 Database Server	
Typical Application	Up 100 NEs*	Up to 200 NEs*	Up to 500 NEs*	
Processor (SPARC64 VII, UltraSPARC T2, or UltraSPARC T2 Plus)	1 x Quad-Core UltraSPARC T1 1.0 GHz	1 x 8-Core UltraSPARC T2 1.2 GHz	1 x Quad-Core UltraSPARC T1 1.0 GHz	2 x 8-Core UltraSPARC T2 1.2 GHz
Power Supply	1 x AC or DC	1 x AC or DC	1 x AC or DC	1 x AC or DC
L2 Cache per Processor	3 MB	4 MB	3MB	4 MB
Memory	8 GB**	8 GB**	8 GB	12 GB**
10000 rpm Disk Drive	2 x 73 GB or above	2 x 146 GB or above	2 x 146 GB or above	2 x 146 GB or above
Operating System	Solaris 10	Solaris 10	Solaris 10	Solaris 10
Oracle license number required (if database service is running on the server).	1 x SE1 Recommended	1 x SE1 Recommended	N/A	2 x SE1 Recommended
Slide rail kit	1	1	1	1
Graphic Interface	Required	Required	Required	Required
Screen Monitor	Recommended	Recommended	Recommended	Using KVM is highly Recommended

* Based on high capacity NE, such as AM3440-A. It is strongly recommended to separate iNMS application server components from Database server to a network with more than 200 nodes. Single dual-core processor machine is only good for network less than 50 NEs. Network with 500 nodes needs dual processors machine.

** Memory requirements = (4GB system minimum + number of nodes x 8MB) x 1.4

PC Server Specifications

Note: This recommendation is for reference only. Please consult with Loop representative for precise hardware spec and quantities.
For project needing more than 100 NEs, please consult with Loop FAE for recommendation.

Item	(Rack Mount) Low Capacity Dell PowerEdge R320	(Rack Mount) Medium Capacity Dell PowerEdge R420	(Tower) Low Capacity Dell PowerEdge T320	(Tower) Medium Capacity Dell PowerEdge R420
Typical Application	Up to 50 NEs*	Up to 100 NEs*	Up to 50 NEs*	Up to 100 NEs*
Processor	1 x Intel® Xeon® E5-2407 4C (2.20GHz or above)	1 x Intel® Xeon® E5-2430 6C (2.20GHz or above)	1 x Intel® Xeon® E5-2403 4C (1.80GHz or above)	1 x Intel® Xeon® E5-2430 6C (2.20GHz or above)
Memory	8GB RDIMM** 1333 MHz	8GB RDIMM** 1333 MHz	8GB RDIMM** 1333 MHz	8GB RDIMM** 1333 MHz
Hard disk	500GB 7.2K SATA 3.5 "	500GB 7.2K SATA 3.5 "	300GB 15K 6Gbps SAS 3.5 "	300GB 15K 6Gbps SAS 3.5 "
DVD R/W	DVD R/W	DVD R/W	DVD R/W	DVD R/W
RAID Controller	Embedded SATA	Embedded SATA	PERC H310	PERC H310
NIC	Dual Port 1GbE	Dual Port 1GbE	Dual Port 1GbE	Dual Port 1GbE
Operating System	Linux / CentOS-6.3	Linux / CentOS-6.3	Linux / CentOS-6.3	Linux / CentOS-6.3

* Based on high capacity NE, like AM3440-A. Dual-Core or 3-Core processor machine is only good for network less than 50 NEs. **It is strongly recommended to separate iNMS application server from Database server to a network with more than 100 nodes.**

** Memory requirement = (4GB system minimum + number of nodes x 8MB) x 1.4

Desktop PC Specifications for GUI client

Item	Desktop PC for GUI Client
Typical Application	For all numbers of NEs
Processor	Intel Core 2 Due (2.4 GHz or above)
Memory	2GB or above
Hard disk	160GB/7200rpm or above
DVD R/W	DVD R/W
Sound card & Speaker	Sound interface and Speakers
NIC	10/100/1000M
Graphics	ATI Radeon Xpress 200 graphics or equivalent
Mouse	USB Wheel or Optical Mouse
Monitor	22" LCD (1024*768) or above
Operating System	Windows XP Professional/Windows 7 Professional 32-bit

Third-Party Software

Item	Name	Mandatory/ Optional	Description	Remarks
1	Microsoft Excel	M	One Microsoft Excel (2010 or later) for each GUI client	MS Excel is required for various report functions on iNMS. The report function will NOT work without MS Excel. (for MS 2010 or later)
2	Oracle Database (To be purchased from Loop as a bundle)	M	(1). Oracle Standard Edition One (SE1) bundled with Loop iNMS	Applicable to database server up to two processors.
			Or (2).Oracle Standard Edition (SE) bundled with Loop iNMS	Good for database server with 2 ~ 4 processors
			Or (3). Oracle Enterprise Edition (EE) bundled with Loop iNMS	For database server which has more than four processors and need the advanced features in Oracle database.

Standards

ITU-T M.3100—Generic Network Information Model.
ITU-T M.3200—TMN Management Service: Overview.
ITU-T M.3400—Management Functions

Loop-iNMS Ordering Information

To order the Loop-iNMS products, you must select **one Main Core** and then the options you require for that Main Core. If you are ordering several Main Cores, they must be ordered individually in separate orders.

Note: If you already have a Main Server Software and wish to upgrade it, leave the Main Server Software off of your order form and simply list the option or options you require and provide Loop with the serial number of the iNMS product you have already purchased.

■ iNMS Main

Please select the iNMS Main Server Software if desired. If you're puchasing additional options for an existing network, leave this off of the order form.

iNMS Main Core	Description	Notes
Loop-iNMS-Main-**nsl**-**os**	Loop-iNMS Main Server Software (not including hardware, database software and installation). The Main system includes Basic Functions: Alarm monitoring, Configuration, Circuit provisioning, Diagnosis, Performance, and Reports with standard formats. Full version of User's Manual CD (soft copy) included.	• Where **"nsl"** and "**os"** are defined in tables below.

Where **os** is the Operating System selection (Choose the same Operating System for all **os**)

os =	Description	Notes
Solaris	Solaris on Sun server platform	
Linux	Linux on Intel x86 platform	

Where **nsl** is the Network Scale Level (NSL) selection

nsl =	Description	Notes
10	When this Level **10** is purchased, the iNMS system can manage a Network Scale of up to **10** Major NEs at maximum.	• The NSL is different from the NE license. The NSL is the license of Maximum Network Scale Level, under which the iNMS platform is capable to handle. While the NE license is to specify which NE to be managed. • The NSL is only counting the Major NEs, instead of the CPE NEs. The major NEs are defined in NE License table below. • For nsl more than 10000, please consult Loop Sales for an offer. It'll be project dependant.
25	When this Level **25** is purchased, the iNMS system can manage a Network Scale of up to **25** Major NEs at maximum.	
50	When this Level **50** is purchased, the iNMS system can manage a Network Scale of up to **50** Major NEs at maximum.	
100	When this Level **100** is purchased, the iNMS system can manage a Network Scale of up to **100** Major NEs at maximum.	
200	When this Level **200** is purchased, the iNMS system can manage a Network Scale of up to **200** Major NEs at maximum.	
500	When this Level **500** is purchased, the iNMS system can manage a Network Scale of up to **500** Major NEs at maximum.	
1000	When this Level **1000** is purchased, the iNMS system can manage a Network Scale of up to **1000** Major NEs at maximum.	
10000	When this Level **10000** is purchased, the iNMS system can manage a Network Scale of up to **10000** Major NEs at maximum.	

iNMS DR Software

Please Select the Disaster Recovery (Redundancy) Control Software if desired. If DR is not desired, leave it off of the order form.

iNMS DR Software	Description	Notes
Loop-iNMS-DR-**os**	Loop-iNMS DR (Disaster Recovery) Software license for each physical server. This DR software is in charge of redundancy status monitoring, database replication, and manual DR protection switching.	• To order this item, user needs to purchase one additional copy of Main Server Software. • Each physical server requires a license. • **os** is defined in tables below.

iNMS GUI Clients

Please specify the number of GUI clients you will be serving.

GUI Clients	Description	Notes
Loop-iNMS-GUI	Each Loop-iNMS GUI client software license, not including Windows OS, MS Excel, Geographical Map, and H/W	• Order from 1 to 50

iNMS Feature Options

Please specify which iNMS types you need. You may choose any or all of the available features.

iNMS Feature	Description	Notes
Loop-iNMS-RCA-**os**	Loop-iNMS Root Cause Analysis Subsystem	• Order one for each iNMS Main Server Software • Where **os** is defined in tables below • Pseudowire Management supports TDMoE cards. (Future Option)
Loop-iNMS-RMG-**os**	Loop-iNMS Report Management Generic Subsystem	
Loop-iNMS-DM-**os**	Loop-iNMS Docket Management Subsystem	
Loop-iNMS-CDM-**os**	Loop-iNMS Clock Distribution Map Subsystem	
Loop-iNMS-PWM-**os***	Loop-iNMS Pseudowire Management Subsystem	
Loop-iNMS-SNMPNBI-v1-**os**	Loop-iNMS SNMP v1 Northbound Interface Software	
Loop-iNMS-SNMPNBI-v3-**os**	Loop-iNMS SNMP v1/v3 Northbound Interface Software	
Loop-iNMS-CGCA-**os**	Loop-iNMS Circuit Group and Circuit Alarm subsystem	
Loop-iNMS-CPERF-**os**	Loop-iNMS Circuit-Level Performance software	

Where **os** is the Operating System selection (Choose the same Operating System for all **os**)

os =	Description	Notes
Solaris	Solaris on Sun server platform	
Linux	Linux on Intel x86 platform	

iNMS NE Management Licenses

The total number of network element (NE) licenses you need is the sum of numbers of NE for each NE type.

iNMS NE License (Devices List)	Description	Notes
Loop-iNMS-AM3440A	Each AM3440-CHA Major NE management license.	• Please specify, for each NE type, the actual number (n) of NEs • Not all the cards for individual NE license are managed by iNMS, for detail, please contact LOOP. • Since Loop-iNMS Main Server Software will keep evolving to support new plug-in cards and new features, each NE License purchased will not cover those new
Loop-iNMS-AM3440B	Each AM3440-CHB Major NE management license	
Loop-iNMS-AM3440C	Each AM3440-CHC Major NE management license	
Loop-iNMS-AM3440D	Each AM3440-CHD Major NE management license	
Loop-iNMS-E15002S	Each E1500-2S Major NE management license	
Loop-iNMS-H3300S	Each H3300-S CPE NE management license in conjunction with AM3440	
Loop-iNMS-H3310	Each H3310 CPE NE management license in conjunction with AM3440	
Loop-iNMS-H3900S	Each H3900-S CPE NE management license in conjunction with AM3440	
Loop-iNMS-O9100	Each O9100 Major NE management license	
Loop-iNMS-O9400S	Each O9400S Major NE management license	
Loop-iNMS-O9400R(CC4)	Each O9400R/CC4 Major NE management license	
Loop-iNMS-O9400R(CC16)	Each O9400R/CC16 Major NE management license	
Loop-iNMS-O9500	Each O9500 Major NE management license	
Loop-iNMS-U3500S	Each U3500-S CPE NE management license in	

	conjunction with AM3440	functions developed after the first purchase of the iNMS main system. If those new functions are needed in the later phases, an NRE charge will be required. • 3rd-party NE is Applicable to Loop and 3rd-party equipments.
Loop-iNMS-V4100	Each V4100 Major NE management license	
Loop-iNMS-V4150	Each V4150 Major NE management license	
Loop-iNMS-V4209	Each V4200-9 Major NE management license	
Loop-iNMS-3rdNE	Each 3rd-Party NE management license	

Oracle License

Please Select the appropriate Oracle license if desired.

Oracle Edition	Description	Notes
Loop-iNMS-Oracle-SE1	Oracle Standard Edition One (SE1)	1) Include one Oracle Processor metric license 2) Need one license for each processor (socket) 3) SE1 can only be licensed on a server that has a maximum capacity of two processors (sockets)
Loop-iNMS-Oracle-SE	Oracle Standard Edition (SE)	1) Include one Oracle Processor metric license 2) Need one license for each processor (socket) 3) SE can be licensed on a server with up to 4 processors (sockets)
Loop-INMS-Oracle-EE	Oracle Enterprise Edition (EE)	1) Include one Oracle Processor metric license 2) For multi-core processor, the number of required EE licenses shall be determined by multiplying the number of processor(s) by the number of core(s) of each processor and times Oracle Core Factor. 3) "Core Factor" specified by "Oracle Processor Core Factor Table" can be found at http://oracle.com/contracts. 4) Good for Database server with more than 4 processors

iNMS Software Maintenance Agreement (SMA)

Purchase of the 1st year SMA is mandatory. Please specify how many **years of iNMS SMA** you desire to purchase. The iNMS software upgrade/patches for bug fixing are only available within the maintenance period purchased.

Note: Software maintenance agreements are available only in yearly basis starting from date of purchase of iNMS. The price quoted for the new SMA applies only before the expiration of the current SMA.

iNMS SMA Type	Description	Notes
Loop-iNMS-SMAB	iNMS annual Software Maintenance Agreement (SMA) Bronze including: - Access to software patches/upgrade for bug fixing (not including the new features). - 5x8 (GMT+8) e-mail consulting	• Purchase of the 1st year SMA is mandatory. • Please order the number of years of SMA coverage you wish to purchase. • Customer with existing iNMS running shall reinstate any expired SMAB/SMAS/SMAG/SMAP before making any new order of iNMS software components and services. • New purchase of iNMS components and services will NOT reinstate the expired SMA automatically. • All remote support activities, if purchased, are made possible through remote supporting tools, such as VPN or remote desktop. It's the end customer's responsibility to provide all necessary remote access
Loop-iNMS-SMAS	iNMS annual Software Maintenance Agreement (SMA) Silver including: - Access to software patches/upgrade for bug fixing (not including the new features). - 5x8 (GMT+8) e-mail consulting - 5x8 real-time (GMT+8) consulting via phone call and IMs (Skype, …) - 5x8 (GMT+8) field problem remote diagnosis - Remote commencement of software patching - Field iNMS Mimic at Loop's Lab	
Loop-iNMS-SMAG	iNMS annual Software Maintenance Agreement (SMA) Gold including: - Access to software patches/upgrade for bug	

iNMS SMA Type	Description	Notes
	fixing (not including the new features). - 7x24 e-mail consulting - 7x24 real-time consulting via phone call and IMs (Skype, …) - 7x24 field problem remote diagnosis - Remote commencement of software patching - Provide quarterly report on iNMS system health checkup including Database Synchronization, Network Alarm Analysis, and Server Performance. - Field iNMS Mimic at Loop's Lab	connections and tools at the customer side. • 5x8 denotes Monday through Friday from 9:00am to 5:00pm (GMT+8) • Access right to the Software Patches/upgrade for bug fixing will not include the right to the latest version with new features.
Loop-iNMS-SMAP	iNMS annual Software Maintenance Agreement (SMA) Platinum including: - Access to software patches/upgrade for bug fixing (not including the new features). - 7x24 e-mail consulting - 7x24 real-time consulting via phone call and IMs (Skype, …) - 7x24 field problem remote diagnosis - Remote commencement of software patching - Provide monthly report on iNMS system health checkup including Database Synchronization, Network Alarm Analysis, and Server Performance. - Field iNMS Mimic at Loop's Lab - Field on-site support for up to two field trips of total 10 working days annually	• Since Loop-iNMS Software will keep evolving to support new plug-in cards and new features, the SMA purchased will not cover those new functions developed afterward. If those new functions are needed in the later phases, a NRE charge will be required. • The SMA will cover Loop-iNMS Software only, and will not cover the problems of Hardware, operation system platform, network condition, and viruses. • For maintenance purposes, the "Field iNMS Mimic" is referring to a Mirror iNMS system constructed at Loop's Lab to mimic customer's iNMS.
Loop-iNMS-RSMA	iNMS annual Reinstatement of SMA (Software Maintenance Agreement)	• If the purchased SMA has expired, you may retain the maintenance service by reinstating your SMA by purchasing RSMA for all prior unpaid year(s), before ordering the SMA for current year. • Customer with existing iNMS running shall reinstate any expired SMA before making any new order of iNMS software components and services.

iNMS Service

Loop-iNMS service is available from Loop. **To the service charges quoted below, traveling, food, and lodging cost for the service must be added and will be quoted separately.**

iNMS Type	Description	Notes
Loop-iNMS-Site-Install	On-site installation service for iNMS Software by Loop engineer.	• Prerequisite: Server Hardware and DCN management channels are ready. • Please order the number of service days you wish to purchase. • 5 working man days per person minimum. (a man day is 8 working man hours) • On-site service charge per person per day in addition to traveling and lodging costs.

iNMS Type	Description	Notes
Loop-iNMS-Site-Training	On-site iNMS training courses including: - Overview of iNMS system - iNMS Security and Administration - iNMS Views - iNMS Topology - iNMS Circuit - iNMS Diagnosis - iNMS Performance - iNMS System Monitor - iNMS Workshop	• Please order the number of training days you wish to purchase. • 3 working man days per person minimum. • Excluding facility, food, and class room preparation for the audiences. • On-site service charge per person per day in addition to traveling and lodging costs, excluding facility, food, and class room preparation for the audiences.
Loop-iNMS-Site-Support	Technical On-Site Support services for DCN channel diagnosis, software upgrade, integration, trouble-shooting , network design consulting and testing (such as POC, PAT, and UAT)	• Please order the number of service days you wish to purchase. • 3 working man days per person minimum. • If the SMA (Software Maintenance Agreement) expires, please reinstate it first before you can order this service. • On-site Support service charge per person per day shall add addition traveling and lodging costs.
Loop-iNMS-Site-Dedicate	Long-Term Dedicated Engineer On-Site Support	• Discussed case by case
Loop-iNMS-NP	Network Planning Services including: - New network solution design, - Network expansion planning - Network DCN design.	• Prerequisite: Network diagram and DCN channel plan from operators. • Loop and operators have to work together to produce the final plans. • Please order the number of service days you wish to purchase. • 3 working man days per person minimum. • Conducted at Loop Factory
Loop-iNMS-NSD	Network Survey and Diagnosis Services including: - Network Diagnosis - Migration proposal of old NEs into iNMS management - Remedy for incompatibility between NEs version and iNMS version	• To be discussed case by case.
Loop-iNMS-Factory-Training	Factory iNMS training courses including: - Overview of iNMS system - iNMS Security and Administration - iNMS Views - iNMS Topology - iNMS Circuit - iNMS Diagnosis - iNMS Performance - iNMS Report	• Please order the number of service days you wish to purchase. • 3 working man days per person minimum. • Conducted at Loop Factory.

iNMS Type	Description	Notes
	- iNMS System Monitor - iNMS Workshop	
Loop-iNMS-NRE	NRE charges for special customization per project basis - Special Feature Development - 3rd-Party Equipment Management Integration into iNMS - CORBA North Bound Interface (CORBA NBI) components - Language Support - Customized report - Customized GUI	• Discussed case by case.

Accessories

User's Manual	
Loop-iNMS-UM	User's Manual (paper copy). **Note:** A CD version of the manual is already included as standard package.

Ordering Example

Ordered Item	Quantity	Notes
Loop-iNMS-Main-Linux	1	Maximum is 1
Loop-iNMS-Backup-Linux	1	Maximum is 1
Loop-iNMS-DR-Linux	1	Each server requires a license
Loop-iNMS-GUI	5	Fill in the number of GUI clients required
Loop-iNMS-RCA-Linux	1	Maximum is 1
Loop-iNMS-CDM-Linux	1	Maximum is 1
Loop-iNMS-AM3440	430	NE Management License of 430 *AM3440
Loop-iNMS-V4200-9	30	NE Management License of 30* V4200-9
Loop-iNMS-H3300	4000	NE management License of 4000*H3300
Loop-iNMS-Oracle-SE1	4	4 licenses for a database server with 4 processors
Loop-iNMS-SMAG	1	1 extra year of Software Maintenance Agreement –Gold Package
Loop-iNMS-Site-Install	10	10 days of on-site installation service by Loop engineer

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